

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1-47 are currently pending in this application. Claims 1-19 and 37-45 are allowed. Claims 46 and 47 are withdrawn from further consideration.

By this amendment, claims 20-23, 25, 32, 35 and 36 have been amended, claim 24 is hereby cancelled and new claims 48-74 have been added. Support for this amendment is provided throughout the Specification as originally filed, and also in Figures 1, 3 and 9. No new matter has been introduced by this Amendment.

Changes to the claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

In the Office Action, claims 20, 21, 26 and 30 were rejected under 35 U.S.C. §102(a) as allegedly anticipated by U.S. Patent No. 6,556,103 to Shibata et al. (“Shibata”). Claim 22 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Shibata in view of U.S. Patent No. 6,842,088 to Yamada et al. (“Yamada”). Claims 23-25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Shibata in view of U.S. Patent No. 5,956,292 to Bernstein. Claims 27-29 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Shibata in view of U.S. Patent No. 6,215,375 to Larson et al. (“Larson”). Claims 31-36 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Shibata.

Independent claim 20 recites, *inter alia*:

“A thin film piezoelectric resonator formed using a substrate having a vibration space, an insulating layer formed on an upper surface of the substrate, and a piezoelectric laminated structure formed on an upper surface of the insulating layer and a diaphragm positioned facing the vibration space, wherein . . . the diaphragm comprises a portion of the piezoelectric laminated structure and a portion of the insulating layer, and assuming that a

thickness of the piezoelectric film is ‘t’, and a thickness of the insulating layer is ‘t’, $0.1 \leq t'/t \leq 0.5$ is satisfied ...” (emphasis added)

As understood by the Applicants, Shibata relates to a piezoelectric resonator including a vibrating section having a piezoelectric layer, a pair of electrodes and a support member for holding the vibrating section. The pair of electrodes are provided on opposite sides of the piezoelectric layer, respectively, and the pair of electrodes partially overlap with each other via the piezoelectric layer to define an opposite electrode portion.

As understood by the Applicants, Bernstein relates to a monolithic micromechanical piezoelectric acoustic transducer with integrated control circuit including a support member; a piezoelectric medium disposed on the support member; first and second electrodes engaging the piezoelectric medium; and a control circuit monolithically integrated with the piezoelectric medium and electrodes on the support member and including a switching circuit for selectively interconnecting the electrodes with an I/O bus and a signal processing circuit for conditioning signals propagating between the electrodes and the I/O bus; an array of such acoustic transducers that form an acoustic retina; and a method of making such transducers and arrays.

Applicants respectfully submit that Shibata and Bernstein, either considered alone or in combination do not teach or suggest the above identified feature of claim 20. Specifically, neither Shibata nor Bernstein teach or disclose a thin film piezoelectric resonator formed using a substrate having a vibration space, an insulating layer formed on an upper surface of the substrate, and a piezoelectric laminated structure formed on an upper surface of the insulating layer and a diaphragm positioned facing the vibration space, wherein the diaphragm comprises a portion of the piezoelectric laminated structure and a portion of the insulating layer, and

assuming that a thickness of the piezoelectric film is 't', and a thickness of the insulating layer is 't'', $0.1 \leq t'/t \leq 0.5$ is satisfied, as recited in claim 20.

Therefore Applicants submit that claim 20 is patentable. For at least the foregoing reasons, claims 21-23 and 25-36, which depend on claim 20 are also patentable.

Claim 48 incorporates substantially all limitations from allowed claim 1. Therefore claim 48 and claims 49-74 that depend from claim 48 are believed to be patentable.

CONCLUSION

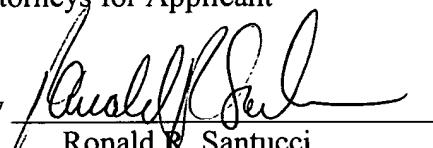
By this Amendment, this application is believed to be in condition for allowance. Favorable reconsideration of the application, withdrawal of the rejections, and prompt issuance of the Notice of Allowance are, therefore, all earnestly solicited.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

Respectfully submitted,

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